

The Second Amendment under the Article 34 PCT, Filed 26 April 2006

CLAIMS

1. (Amended) A motion control apparatus comprising:

a pressing member pressing a fluid due to a rotating motion;

a fluid control mechanism closing a first flow path through which the fluid pressed by said pressing member passes by a valve body due to a pressure of a spring so as to block the fluid from moving, in the case where an external force applied to a movable body as a controlled object in a motion stop state is equal to or less than a predetermined value, opening said first flow path by said valve body being opened against the pressure of said spring so as to allow the movement of the fluid, in the case where the external force applied to said movable body goes over the predetermined value, and opening said first flow path by a pressure receiving surface of said valve body being enlarged in comparison with the time of closing said first flow path so as to be capable of continuing the movement of the fluid even if the external force is reduced to be equal to or less than the predetermined value, after the movement of the fluid is started; and

a delay mechanism delaying the closing motion of the valve body
constituting said fluid control mechanism,

said motion control apparatus being capable of holding the motion stop state of said movable body by utilizing a resistance of the fluid generated by said pressing member pressing the fluid, and being capable of continuing the motion of said movable body by a smaller external force than that at a time of starting the motion, by means of said fluid control mechanism, after the movement of said movable body is started,

wherein said fluid control mechanism is provided in a bottom wall of a chamber in which said pressing member is accommodated.

2. A motion control apparatus as claimed in claim 1, further comprising a seal member sealing a gap formed between a movable member including said pressing member and a non-movable member, and preventing the fluid from moving through

said gap.

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6. (Cancelled)

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8. A motion control apparatus as claimed in claim 1, further comprising:
a third flow path through which the fluid is allowed to pass;
a valve mechanism closing said third flow path by the valve body so as to block the movement of the fluid, in the case where the external force applied to said movable body in the motion stop state is less than a predetermined value, and opening said third flow path so as to allow the movement of the fluid, in the case where the external force applied to said movable body reaches the predetermined value; and

a fourth flow path through which the fluid passing through said third flow path is allowed to pass,

wherein a resistance of the fluid is generated by throttling a flow volume of the fluid moving through said fourth flow path by said fourth flow path.

9. A motion control apparatus as claimed in claim 1, further comprising:
a fifth flow path through which the fluid is allowed to pass; and
a valve mechanism closing said fifth flow path by the valve body so as to block the movement of the fluid, in the case where the external force applied to said movable body in the motion stop state is less than a predetermined value, and

opening said fifth flow path so as to allow the movement of the fluid, in the case where the external force applied to said movable body reaches the predetermined value,

wherein a resistance of the fluid is generated by throttling a flow volume of the fluid moving through said fifth flow path by said fifth flow path.

10. A motion control apparatus as claimed in claim 1, further comprising a sixth flow path capable of making the fluid passing through said first flow path flow into a chamber in which an internal pressure is reduced due to a rotating motion of said pressing member,

wherein said sixth flow path is structured such as to be allowed to pass the fluid therethrough without throttling a flow volume of the fluid.

11. A motion control apparatus as claimed in claim 1, further comprising a seventh flow path capable of reducing a resistance of the fluid generated by being pressed by said pressing member in a part of an angular range at which said pressing member is allowed to move.

12. (Amended) A door of a motor vehicle comprising:

a motion control apparatus built in a door main body; and

a transmission member transmitting an external force applied to the door main body to said motion control apparatus,

wherein said motion control apparatus comprises:

a shaft to which the external force applied to the door main body is transmitted via said transmission member;

a pressing member executing a rotating motion in accordance with a rotation of said shaft and pressing a fluid;

a fluid control mechanism closing a first flow path through which the fluid pressed by said pressing member passes by a valve body due to a pressure of a spring so as to block the fluid from moving, in the case where an external force applied to

said door main body in a motion stop state is equal to or less than a predetermined value, opening said first flow path due to an opening motion of said valve body against the pressure of said spring so as to allow the movement of the fluid, in the case where the external force applied to said door main body goes over the predetermined value, and opening said first flow path due to the pressure receiving surface of said valve body being enlarged in comparison with the time of closing said first flow path so as to be capable of continuing the movement of the fluid even if the external force is reduced to be equal to or less than the predetermined value, after the movement of the fluid is started; and

a delay mechanism delaying the closing motion of the valve body
constituting said fluid control apparatus,

said motion control apparatus being capable of holding the motion stop state of said door main body by utilizing a resistance of the fluid generated by said pressing member pressing the fluid, and being capable of continuing the motion of said door main body by a smaller external force than that at a time of starting the motion, by means of said fluid control mechanism, after the movement of said door main body is started,

wherein said fluid control mechanism is provided in a bottom wall of a
chamber in which the pressing member of said motion control apparatus is
accommodated.

13. A door of a motor vehicle as claimed in claim 12, wherein said motion control apparatus is provided with a seal member sealing a gap formed between a movable member including said pressing member and a non-movable member, and preventing the fluid from moving through said gap.

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17. (Cancelled)

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19. A door of a motor vehicle as claimed in claim 12, wherein said motion control apparatus comprises:

a third flow path through which the fluid is allowed to pass;

a valve mechanism closing said third flow path by the valve body so as to block the movement of the fluid, in the case where the external force applied to said door main body in the motion stop state is less than a predetermined value, and opening said third flow path so as to allow the movement of the fluid, in the case where the external force applied to said door main body reaches the predetermined value; and

a fourth flow path through which the fluid passing through said third flow path is allowed to pass,

wherein a resistance of the fluid is generated by throttling a flow volume of the fluid moving through said fourth flow path by said fourth flow path.

20. A door of a motor vehicle as claimed in claim 12, wherein said motion control apparatus comprises:

a fifth flow path through which the fluid is allowed to pass; and

a valve mechanism closing said fifth flow path by the valve body so as to block the movement of the fluid, in the case where the external force applied to said door main body in the motion stop state is less than a predetermined value, and opening said fifth flow path so as to allow the movement of the fluid, in the case where the external force applied to said door main body reaches the predetermined value,

wherein a resistance of the fluid is generated by throttling a flow volume of

the fluid moving through said fifth flow path by said fifth flow path.

21. A door of a motor vehicle as claimed in claim 12, wherein said motion control apparatus is provided with a sixth flow path capable of making the fluid passing through said first flow path flow into a chamber in which an internal pressure is reduced due to a rotating motion of said pressing member, and said sixth flow path is structured such as to be allowed to pass the fluid therethrough without throttling a flow volume of the fluid.

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